

REMARKS

This Amendment is in response to the Final Office Action dated October 17, 2008 wherein the Office: objected to the Specification; rejected claims 53 – 65 under 35 U.S.C. § 101; rejected claims 1, 2, 12 – 24, 26 – 30, 37, 46 – 50, 53 – 61, 65, and 66 under 35 U.S.C. § 102; and rejected claims 1 – 11, 13 – 14, 15 – 17, 19 – 22, 25, 29 – 45, 47 – 48, 51 – 52, 54 – 58, and 63 – 68 under 35 U.S.C. § 103.

Applicants note with appreciation the telephone interview with the Examiner on January 5, 2009.

Applicants have amended claims 1, 6, 12, 18, 24, 27, 28, 46, 53 – 65. No new matter has been added.

Applicants believe that the amendments put the application in condition for allowance, or in better form for appeal. Applicants request that the amendment be entered.

The following comments are presented in the same order and with headings and paragraph numbers corresponding to those set forth in the Office Action.

Specification

1. The Office objected to the Specification, alleging lack of proper antecedent basis for a “computer-readable” storage medium. Applicants direct the Office’s attention to MPEP § 2173.05(e) which states

A CLAIM TERM WHICH HAS NO ANTECEDENT BASIS IN THE DISCLOSURE IS NOT NECESSARILY INDEFINITE

The mere fact that a term or phrase used in the claim has no antecedent basis in the specification disclosure does not mean, necessarily, that the term or phrase is indefinite. There is no requirement that the words in the claim must match those used in the specification disclosure. Applicants are given a great deal of latitude in how they choose to define their invention so long as the terms and phrases used define the invention with a reasonable degree of clarity and precision.

Thus, it is unnecessary for the claim terms to exactly match the specification, if those claim terms “define the invention with a reasonable degree of clarity and precision.”

In the instant case, the Office requires correction of the specification because the phrase “computer-readable” storage medium is not specifically recited in the specification. Applicants respectfully submit, however, that the phrase “computer-readable” storage medium, as that term is used in the claims, is sufficiently clear to convey to a person of ordinary skill in the art the metes and bounds of the invention. Specifically, Applicants point to paragraph [0060] on page 15 of the specification which states the following:

An exemplary storage medium is coupled to the processor such the processor can read information from, and write information to, the storage medium. In the alternative, the storage medium may be integral to the processor. The processor and the storage medium may reside in an ASIC. The ASIC may reside in a user terminal. In the alternative, the processor and the storage medium may reside as discrete components in a user terminal.

A person of ordinary skill in the art, reading the above-quoted portion of the specification, as well as the specification as a whole, would recognize that a “computer-readable” storage medium has been disclosed.

Nevertheless, in the interest of furthering prosecution, Applicants have amended claims 53 – 65, as presented above, to now recite a “processor-readable storage medium.” Support can be found at least in the above-cited text from the specification. Applicants request that the rejection be removed.

Claim Rejections – 35 USC § 101

2. The Office rejected claims 53–65 under 35 USC § 101, alleging the same to be directed toward non-statutory subject matter. Applicants respectfully disagree.

Claims 53 – 65 are directed to statutory subject matter. The Office asserted that

because ‘*instructions*’ as nonfunctional descriptive material is recorded on some computer-readable medium, in a computer or on an electromagnetic carrier signal, it is not statutory since no requisite functionality is present to satisfy the practical application requirement. Merely claiming nonfunctional descriptive material, i.e., abstract ideas, stored on a computer-readable medium, in a computer, or on an electromagnetic carrier signal, does not make it statutory.

Applicants direct the Office’s attention to MPEP § 2106, which states the following:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, **"functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component.** (Emphasis added.)

Applicants respectfully assert that instructions, as in claims 53 – 65, which are located on a storage medium and executed by a processor are "functional descriptive material," and thus statutory subject matter, because the instructions cause the processor to perform tasks, thereby "impart[ing] functionality."

Applicants also direct the Office's attention to the portion of MPEP § 2106 reproduced immediately below:

Computer programs are often recited as part of a claim. USPTO personnel should determine whether the computer program is being claimed as part of an otherwise statutory manufacture or machine. In such a case, the claim remains statutory irrespective of the fact that a computer program is included in the claim. The same result occurs when a computer program is used in a computerized process where the computer executes the instructions set forth in the computer program. Only when the claimed invention taken as a whole is directed to a mere program listing, i.e., to only its description or expression, is it descriptive material *per se* and hence nonstatutory.

Since a computer program is merely a set of instructions capable of being executed by a computer, the computer program itself is not a process and USPTO personnel should treat a claim for a computer program, without the computer-readable medium needed to realize the computer program's functionality, as nonstatutory functional descriptive material. When a computer program is claimed in a process where the computer is executing the computer program's instructions, USPTO personnel should treat the claim as a process claim. **When a computer program is recited in conjunction with a physical structure, such as a computer memory, USPTO personnel should treat the claim as a product claim.** (Emphasis added.)

As presented above, claims 53 – 65 have been amended to make clear that the claims are directed to a processor-readable medium comprising instructions that when executed by a processor cause the processor to perform specified functions. Examples of such computer-readable storage media include a computer memory or a hard disk, as specifically set forth in para. [0060] on page 15 of the specification. Such items are articles of manufacture or machines

as set forth in 35 U.S.C. § 101. As a result, claims 53 – 65 are directed to subject matter that falls within the statutory categories set forth by 35 U.S.C. § 101.

Finally, Applicants also direct the Office to the “Examination Guidelines for Computer-Related Inventions,” Final Version, promulgated by the U.S. Patent & Trademark Office (USPTO) and found on the USPTO’s website. For example, Applicants direct the Office to pages 9 – 10 which discuss the patentability of computer-readable media including computer memory containing instructions that impart functionality to a processor or other processor. Page 9 explains that data structures and program code (i.e., software instructions) which impart functionality when encoded on a computer-readable medium will be statutory in most cases.

In light of the above, Applicants traverse the rejection and request its removal.

Claim Rejections – 35 USC § 102

4. The Office rejected claims 1–2 under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,421,386 to Chung et al. (hereafter “Chung”).

Chung fails to teach or suggest all the features of amended claim 1. Claim 1 recites the following:

Method for categorizing in a video encoder a portion of a video frame, comprising:

 using texture information in the portion to determine whether the portion comprises at most a predetermined amount of spatial information;

 if the texture information indicates that the portion comprises at most the predetermined amount of spatial information, then categorizing the portion as nonpredictive;

 if the texture information indicates that the portion does not comprise at most a predetermined amount of spatial information, then:

 using motion information of the current macroblock to determine whether the portion comprises at least a predetermined amount of predictive information.

As seen above, the method of claim 1 is a multi-step process. One example embodiment of a process is shown in FIG. 3 of the instant application, which is reproduced immediately below:

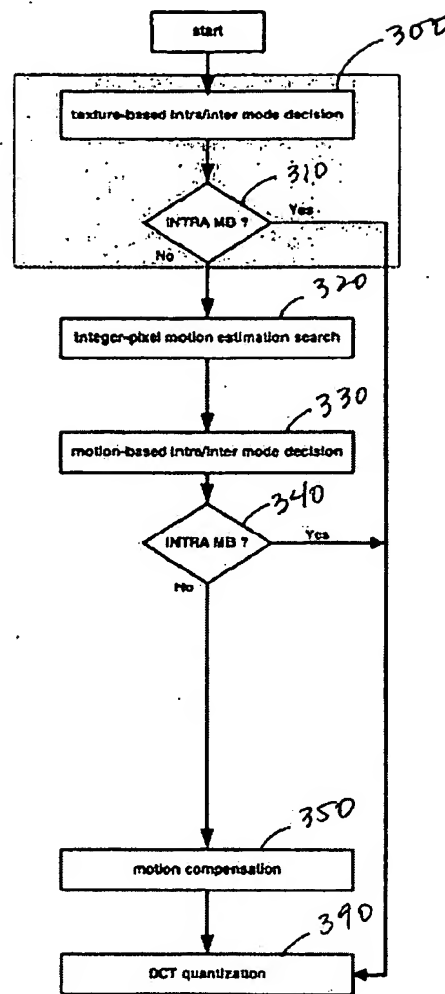


FIG. 3

Claim 1 is directed to a method that uses motion information to determine whether a portion of a video frame comprises at least a predetermined amount of predictive information if it is first determined that texture information indicates that the portion does not comprise at most a predetermined amount of spatial information. As such, per the method of claim 1, use of motion information to determine whether the portion comprises at least a predetermined amount of predictive information is conditioned on the prior determination that the texture information indicates that the portion does not comprise at least a predetermined amount of spatial information. This is in contrast to the teachings of Chung. Chung does not use motion information to determine whether a portion of a video frame comprises at least a predetermined

amount of predictive information if texture information indicates that the portion does not comprise at most a predetermined amount of spatial information. In Chung, motion information is not used on such a condition. Rather, Chung proceeds through motion estimation for every macroblock. Consequently, Chung applies motion estimation to each macroblock without regard to any prior determination that texture information indicates that the macroblock does not comprise at least a predetermined amount of spatial information.

With reference to FIG. 2 of Chung, it is clear that motion estimation takes place *before* any texture coding. This is described at column 3, lines 22 – 26 of Chung: “In the encoder, upon receiving information (texture information and shape information) regarding a desired object, a motion estimation part 13 estimates macroblock-unit motion from the received information.” As such, Chung fails to teach or suggest “if the texture information indicates that the portion does not comprise at most a predetermined amount of spatial information, then using motion information of the current macroblock to determine whether to predictively encode the current macroblock,” particularly in combination with the other recited elements of Applicants’ claim 1.

In the example of FIG. 3, in the present application, texture information is used to determine “whether the portion comprises at most a predetermined amount of spatial information” at 300, 310. If it does, then the portion is categorized as nonpredictive and proceeds to quantization at 390. In this case, by considering texture information, motion estimation can be avoided for some portions of the video frame. However, “if the texture information indicates that the portion does not comprise at most a predetermined amount of spatial information,” then the motion information is used “to determine whether the portion comprises at least a predetermined amount of predictive information” at 320, 330.

In support of the rejection of claim 1, the Office points specifically to col. 7, lines 31 – 34, and reference numbers 13 and 14 of FIG. 2 in Chung. Column 7, lines 27 – 39 of Chung are reproduced immediately below:

A method for coding gray scale texture information of a non-transparent gray macroblock may be classified into two types, or an intra coding method and an inter coding method, which are selectively performed depending on determination based on image texture information. In other words, if the intra coding method is performed for image texture information, it is similarly applied to gray scale texture information in the same macroblock. Also, if the inter coding method is performed for image texture information, it is similarly applied to gray scale texture information in the same macroblock. To this end, the coding operation is performed for the image texture information earlier than the gray scale texture information.

The above-quoted portion of Chung simply states that intra coding is used for the gray scale texture information if intra coding was used for the image texture information, and inter coding is used for the gray scale texture information if inter coding was used for the image texture information. Chung makes no mention, in the above passage or elsewhere, of using motion information to determine whether a portion of a video frame comprises at least a predetermined amount of predictive information if texture information indicates that the portion does not comprise at most a predetermined amount of spatial information, as set forth in claim 1. For at least these reasons, Applicants respectfully assert that Chung does not anticipate claim 1. Claim 2 incorporates all the subject matter of claim 1, and adds additional subject matter, making it patentable as well over Chung. As such, Applicants request withdrawal of the rejection and that claims 1–2 be allowed.

5. The Office rejected claims 1–2 under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 7,280,597 to Zhang et al. (hereafter “Zhang”).

Zhang fails to teach or suggest all of the limitations of claim 1. In the previous response, filed July 15, 2008, Applicants put forth extensive arguments detailing why Zhang does not anticipate claim 1. The Office did not respond specifically to these arguments. In this response, Applicants incorporate by reference the previous arguments of the July 15, 2008 response and add the following arguments.

Like in Chung, described above, motion estimation must always be performed on the video input in Zhang before any texture analysis is performed. This is seen in FIG. 3 of Zhang and is described in col. 5, lines 42 – 46 of Zhang: “Based on an input video 301, motion estimation (ME) 310 is performed for predictive coded frames to yield motion vectors. A

variance calculator also uses the input video to calculate 320 a localized variance of pixel intensity, i.e., texture.” As such, Zhang fails to teach or suggest, “if the texture information indicates that the portion does not comprise at most a predetermined amount of spatial information, then using motion information of the current macroblock to determine whether to predictively encode the current macroblock,” particularly in combination with the other recited elements of claim 1.

Therefore, Applicants respectfully assert that Zhang does not anticipate claim 1. Claim 2 incorporates all the subject matter of claim 1, and adds additional subject matter, making it patentable as well over Zhang. As such, Applicants request withdrawal of the rejection and that claims 1 – 2 be allowed.

6. The Office rejected claims 12, 18–24, 26–28, 46, 53 and 65 under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,697,430 to Yasunari et al. (hereafter “Yasunari”).

Regarding Claim 12

Yasunari fails to teach or suggest all the elements of claim 12. Claim 12 recites:

Method for selectively encoding in a video encoder a current macroblock using nonpredictive encoding or predictive encoding, comprising:

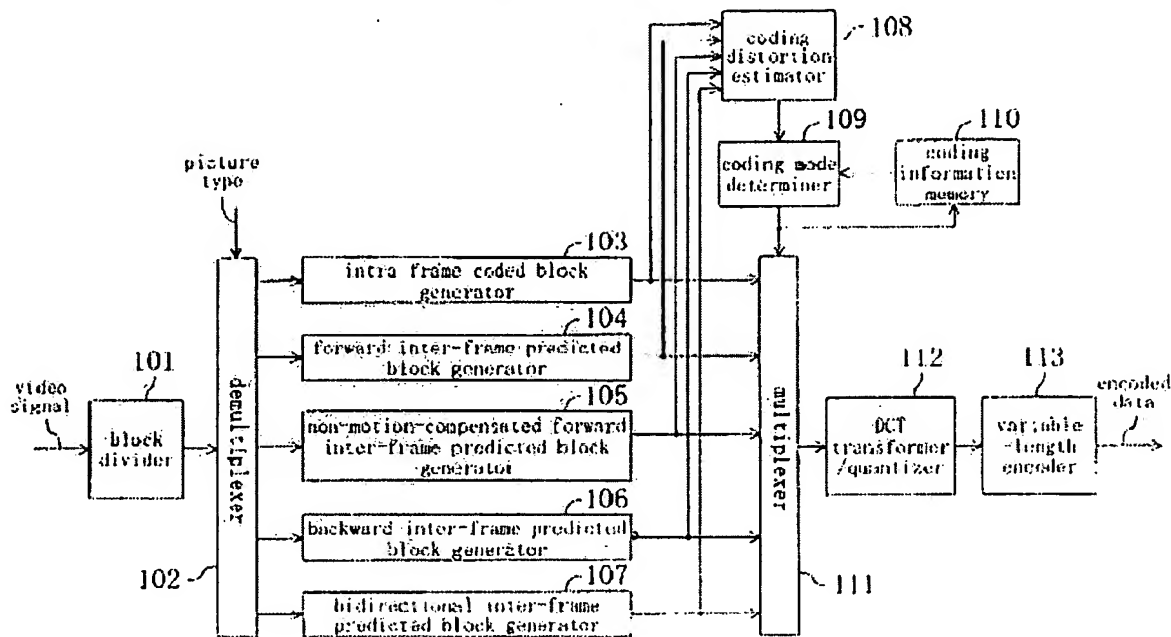
using texture information of the current macroblock to determine whether to nonpredictively encode the current macroblock; and

upon determining not to nonpredictively encode the current macroblock based on the texture information, using motion information of the current macroblock to determine whether to predictively encode the current macroblock.

Claim 12 is directed to a method that uses motion information of a current macroblock to determine whether to predictively encode the current macroblock upon determining not to nonpredictively encode the current macroblock based on texture information of the current macroblock. As such, the determination of whether to predictively encode the current macroblock using motion information is conditioned on a prior determination that the macroblock should not be nonpredictively encoded using texture information.

The Office cites to reference numbers 104 – 107 of FIG. 1 of Yasunari, alleging that they disclose the above-recited element of claim 12. FIG. 1 of Yasunari is reproduced immediately below:

Fig. 1



As seen above in FIG. 1 of Yasunari, there is no teaching or suggestion to provide a method that uses texture information of a current macroblock to determine whether to nonpredictively encode the current macroblock and then using motion information to determine whether to predictively encode the current macroblock if it was previously determined, based on the texture information, not to nonpredictively encode the current macroblock. In Yasunari, blocks 103-107 produce candidate blocks that are used by coding distortion estimator 108 and coding mode determiner 109 to select a coding mode. The motion estimation that would be used in Yasunari to produce predictive blocks clearly is not performed upon previously determining not to nonpredictively encode a current macroblock based on texture information of the macroblock. As such, Yasunari fails to teach or suggest all the elements of claim 12. Applicants request withdrawal of the rejection and that claim 12 be allowed.

Regarding Claim 18

Yasunari fails to teach or suggest all the elements of amended claim 18. Claim 18 recites

configuring at least one variable within a complexity control algorithm in accordance with a configuration signal; wherein the complexity control algorithm categorizes portions of a predictive video frame as nonpredictive portions when texture information of the portions indicates there is less than or equal to a predetermined amount of spatial information, **uses motion information to determine whether to categorize the portions as predictive portions if the texture information of the portions indicates there is not less than or equal to the predetermined amount of spatial information**, and configuring the at least one variable of the complexity control algorithm increases the number of portions in the predictive video frame characterized as nonpredictive portions based upon the texture information. (Emphasis added.)

The Office cites to reference numbers 102 and 108 – 110 of FIG. 1 of Yasunari, alleging that they disclose the above-recited elements of claim 18.

Applicants respectfully assert that there is no teaching or suggestion in either the disclosure or FIG. 1 of Yasunari to provide a method that “categorizes portions of a predictive video frame as nonpredictive portions when texture information of the portions indicates there is less than or equal to a predetermined amount of spatial information” and “uses motion information to determine whether to categorize the portions as predictive portions if the texture information of the portions indicates there is not less than or equal to the predetermined amount of spatial information.” as in claim 18. Again, in Yasunari, blocks 103-107 produce candidate blocks that are used by coding distortion estimator 108 and coding mode determiner 109 to select a coding mode. Block 102 is simply a demultiplexer. None of blocks 102 and 108-110 “categorizes portions of a predictive video frame as nonpredictive portions when texture information of the portions indicates there is less than or equal to a predetermined amount of spatial information” and “uses motion information to determine whether to categorize the portions as predictive portions if the texture information of the portions indicates there is not less than or equal to the predetermined amount of spatial information.” Rather, blocks 108, 109 analyze candidate blocks that have already been encoded to select a coding mode. As such, Yasunari fails to teach or suggest all the elements of claim 18.

Claims 19 – 22 incorporate all the subject matter of claim 18 and add additional subject matter, making them patentable as well over Yasunari. Applicants request withdrawal of the rejection and that claims 18 – 22 be allowed.

Regarding Claim 23

Yasunari fails to teach or suggest all the elements of claim 23. Claim 23 is directed to an apparatus comprising a first complexity control element configured to use texture information of a current macroblock to determine whether to nonpredictively encode the current macroblock, and a second complexity control element configured to, upon determining not to nonpredictively encode the current macroblock based on the texture information, use motion information of the current macroblock to determine whether to predictively encode the current macroblock.

The apparatus of claim 23 uses motion information to determine whether to predictively encode the current macroblock upon determining from the texture information not to nonpredictively encode the current macroblock. In Yasunari, blocks 103-107 produce candidate blocks that are used by coding distortion estimator 108 and coding mode determiner 109 to select a coding mode. The motion estimation that would be used in Yasunari to produce predictive blocks clearly is not performed upon previously determining not to nonpredictively encode a current macroblock based on texture information of the macroblock.

For at least the reasons presented above with respect to the method of claim 12, Yasunari fails to teach or suggest all the elements of claim 23. Applicants request withdrawal of the rejection and that claim 23 be allowed.

Regarding Claim 24

Yasunari fails to teach or suggest all the elements of amended claim 24. Claim 24 recites a complexity control element configured to receive a configuration signal and to configure at least one variable within a complexity control algorithm in accordance with the configuration signal, "wherein the complexity control algorithm categorizes portions of a predictive video frame as nonpredictive portions when texture information of the portions indicates there is less than or equal to a predetermined amount of spatial information, [and] uses motion information to determine whether to categorize the portions as predictive portions if the texture information of the portions indicates there is not less than or equal to the predetermined amount of spatial information." For at least the reasons presented above with respect to the method of claim 18, Yasunari fails to teach or suggest all the elements of the apparatus of claim 24. Applicants request withdrawal of the rejection and that claim 24 be allowed.

Regarding Claim 26

Yasunari fails to teach or suggest all the elements of claim 26. Claim 26 is directed to an apparatus that uses motion information to determine whether to predictively encode a current macroblock upon determining from texture information of the current macroblock not to nonpredictively encode the current macroblock. For at least the reasons presented above with respect to the method of claim 12, Yasunari fails to teach or suggest all the elements of the apparatus of claim 26. Applicants request withdrawal of the rejection and that claim 26 be allowed.

Regarding Claim 27

Yasunari fails to teach or suggest all the elements of amended claim 27. Claim 27 recites, “wherein the complexity control algorithm categorizes portions of a predictive video frame as nonpredictive portions when texture information of the portions indicates there is less than or equal to a predetermined amount of spatial information, [and] uses motion information to determine whether to categorize the portions as predictive portions if the texture information of the portions indicates there is not less than or equal to the predetermined amount of spatial information.” For at least the reasons presented above with respect to the method of claim 18, Yasunari fails to teach or suggest all the elements of the apparatus of claim 18. Applicants request withdrawal of the rejection and that claim 18 be allowed.

Regarding Claim 28

Yasunari fails to teach or suggest all the elements of claim 28. Claim 28 is directed to an apparatus that uses motion information to determine whether the portion comprises at least a predetermined amount of predictive information if the texture information indicates that the portion does not comprise at most a predetermined amount of spatial information. As argued above, in Yasunari, blocks 103-107 produce candidate blocks that are used by coding distortion estimator 108 and coding mode determiner 109 to select a coding mode. Block 102 is simply a demultiplexer. None of blocks 102 and 108-110 use motion information to determine whether the portion comprises at least a predetermined amount of predictive information if the texture information indicates that the portion does not comprise at most a predetermined amount of

spatial information, as in claim 28. Rather, blocks 108, 109 analyze candidate blocks that have already been encoded to select a coding mode. As such, Yasunari fails to teach or suggest all the elements of the apparatus of claim 28. Applicants request withdrawal of the rejection and that claim 28 be allowed.

Regarding Claim 46

Yasunari fails to teach or suggest all the elements of claim 46. Claim 46 is directed to an apparatus that uses motion information to determine whether the portion comprises at least a predetermined amount of predictive information if it is first determined that texture information indicates that the portion does not comprise at most a predetermined amount of spatial information. For at least the reasons presented above with respect to the apparatus of claim 28, Yasunari fails to teach or suggest all the elements of the apparatus of claim 46. Applicants request withdrawal of the rejection and that claim 46 be allowed.

Regarding Claim 53

Yasunari fails to teach or suggest all the elements of claim 53. Claim 53 is directed to a processor-readable storage medium that uses motion information to determine whether the portion comprises at least a predetermined amount of predictive information if it is first determined that texture information indicates that the portion does not comprise at most a predetermined amount of spatial information. For at least the reasons presented above with respect to the apparatus of claim 28, Yasunari fails to teach or suggest all the elements of the apparatus of claim 53. Applicants request withdrawal of the rejection and that claim 53 be allowed.

Regarding Claim 65

Yasunari fails to teach or suggest all the elements of claim 62, from which claim 65 depends. Claim 62 recites, "wherein the complexity control algorithm categorizes portions of a predictive video frame as nonpredictive portions when texture information of the portions indicates there is less than or equal to a predetermined amount of spatial information, [and] uses motion information to determine whether to categorize the portions as predictive portions if the texture information of the portions indicates there is not less than or equal to the predetermined

amount of spatial information.” For at least the reasons presented above with respect to the method of claim 18, Yasunari fails to teach or suggest all the elements of claim 62. Claim 65 incorporates all the subject matter of claim 62 and adds additional subject matter, making it patentable as well over Yasunari. Applicants request withdrawal of the rejection and that claim 65 be allowed.

7. The Office rejected claims 12–18, 23–24, 26–30, 37, 46–50, 53–61 and 66 under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 5,832,234 to Iverson et al. (hereafter “Iverson”).

Regarding Claim 12 and Those Claims Depending Therefrom

Iverson fails to teach or suggest all the elements of claim 12. Claim 12 recites,

Method for selectively encoding in a video encoder a current macroblock using nonpredictive encoding or predictive encoding, comprising:

 using texture information of the current macroblock to determine whether to nonpredictively encode the current macroblock; and

 upon determining not to nonpredictively encode the current macroblock based on the texture information, using motion information of the current macroblock to determine whether to predictively encode the current macroblock.

Claim 12 is directed to a method that uses motion information of a current macroblock to determine whether to predictively encode the current macroblock upon determining not to nonpredictively encode the current macroblock based on texture information of the current macroblock. As such, the determination of whether to predictively encode the current macroblock using motion information is conditioned on a prior determination that the macroblock should not be nonpredictively encoded using texture information.

As seen in FIG. 3 of Iverson, a current frame first goes through the Motion Estimator block 302, in contrast to the embodiments of the invention recited in claims 23, 26, 28 – 30, 37, 46 – 50, 53 – 61, 66. Hence, Iverson does not disclose or suggest using motion information to determine whether to predictively encode the current macroblock from a previous determination based on texture information of the current macroblock not to nonpredictively encode the current

macroblock. In particular, motion estimation is performed by Iverson first, and is not conditioned on any prior determination not to nonpredictively encode a current block based on texture information. As such, Iverson fails to teach or suggest all the elements of claim 12.

Claims 13 – 17 incorporate all the subject matter of claim 12 and add additional subject matter, making them patentable as well over Iverson. Applicants request withdrawal of the rejection and that claims 12 – 17 be allowed.

Regarding Claims 18, 24, and 27

Iverson fails to teach or suggest all the elements of amended claims 18, 24, and 27. Claims 18, 24, and 27 recite, “wherein the complexity control algorithm categorizes portions of a predictive video frame as nonpredictive portions when texture information of the portions indicates there is less than or equal to a predetermined amount of spatial information, [and] uses motion information to determine whether to categorize the portions as predictive portions if the texture information of the portions indicates there is not less than or equal to the predetermined amount of spatial information.”

As seen in FIG. 3 of Iverson, a current frame first goes through the Motion Estimator block 302. Thus, Iverson does not teach or suggest using motion information to determine whether to categorize the portions as predictive portions if the texture information of the portions indicates there is not less than or equal to the predetermined amount of spatial information. Specifically, motion estimation is performed by Iverson first, and is not conditioned on any previous determination based on texture information. Therefore, Iverson fails to teach or suggest all the elements of claims 18, 24, and 27. Applicants request withdrawal of the rejection and that claims 18, 24, and 27 be allowed.

Regarding Claims 23, 26, 28 – 30, 37, 46 – 50, 53 – 61, 66

Iverson fails to teach or suggest all the elements of claims 23, 26, 28 – 30, 37, 46 – 50, 53 – 61, 66. Claims 23, 26, 28 – 30, 37, 46 – 50, 53 – 61, 66 are directed to embodiments that use motion information to determine whether to predictively encode the current macroblock upon determining based on texture information of the current macroblock not to nonpredictively encode the current macroblock.

As seen in FIG. 3 of Iverson, a current frame first goes through the Motion Estimator block 302, in contrast to the embodiments of the invention recited in claims 23, 26, 28 – 30, 37, 46 – 50, 53 – 61, 66. Hence, Iverson does not disclose or suggest using motion information to determine whether to predictively encode the current macroblock from a previous determination based on texture information of the current macroblock not to nonpredictively encode the current macroblock. In particular, motion estimation is performed by Iverson first, and is not conditioned on any prior determination not to nonpredictively encode a current block based on texture information. Therefore, Iverson fails to teach or suggest all the elements of the apparatus of claims 23, 26, 28 – 30, 37, 46 – 50, 53 – 61, 66. Applicants request withdrawal of the rejection and that claims 23, 26, 28 – 30, 37, 46 – 50, 53 – 61, 66 be allowed.

Claim Rejections – 35 USC § 103

9. The Office rejected claims 19–22, 31–34, 36–41, 44–45, 51–52, 63–65 and 67–68 under 35 U.S.C. § 103, as being unpatentable over Iverson in view of U.S. Patent Application Publication No. 2002/0196854 to Kim (hereafter “Kim”).

Regarding claims 19 – 22, as argued above, Iverson fails to teach or suggest all the elements of claim 18. Claims 19 – 22 and 33 – 34 incorporate all the subject matter of claim 18 and add additional subject matter, making them patentable as well over Iverson. The addition of any alleged disclosure in Kim does nothing to remedy the deficiencies of Iverson.

Furthermore, there is no teaching in either Iverson or Kim that suggest that it would be advantageous or desirable to modify the Iverson reference. As such claims 19 – 22 and 33 – 34 are non-obvious over the purported Iverson-Kim combination. Applicants request that the rejection be withdrawn and that claims 19 – 22 and 33 – 34 be allowed.

Regarding claims 31 – 32, Iverson does not teach or suggest all the elements of claim 6, from which claims 31 – 32 depend. Claim 6 recites:

Method for categorizing in a video encoder a portion of a video frame, comprising:
 using texture information in the portion to determine whether the portion comprises at most a predetermined amount of spatial information;
 if the texture information indicates that the portion comprises at most the predetermined amount of spatial information, then categorizing the portion as nonpredictive;

if the texture information indicates that the portion does not comprise at most a predetermined amount of spatial information, then:

performing a motion estimation search;
using motion information determined during the motion estimation search to determine whether the portion comprises at least a predetermined amount of predictive information;
if the motion information indicates that the portion comprises at least the predetermined amount of predictive information, then categorizing the portion as predictive; and
if the motion information indicates that the portion does not comprise at least the predetermined amount of predictive information, then categorizing the portion as nonpredictive.

Claim 6 is directed to a method that performs a motion estimation search and uses motion information determined during the motion estimation search to determine whether the portion comprises at least a predetermined amount of predictive information upon determining texture information indicated that the portion does not comprise at most a predetermined amount of spatial information. Thus, the determination of whether to perform a motion estimation search is conditioned on a prior determination that the texture information indicates that the portion does not comprise at most a predetermined amount of spatial information.

As argued above, in Iverson, frames first go through a Motion Estimator, as seen in FIG. 3 of Iverson. Thus, Iverson does not teach or suggest at least the following elements of claim 6:

if the texture information indicates that the portion does not comprise at most a predetermined amount of spatial information, then:

performing a motion estimation search;
using motion information determined during the motion estimation search to determine whether the portion comprises at least a predetermined amount of predictive information

Claims 31 – 32 incorporate all the subject matter of claim 6 and add additional subject matter, making them patentable as well over Iverson. The addition of any alleged disclosure in Kim does nothing to remedy the deficiencies of Iverson.

Furthermore, there is no teaching in either Iverson or Kim that would suggest that it would have been advantageous or desirable to modify the Iverson reference. As such, claims 31 – 32 are non-obvious over the purported Iverson-Kim combination. Applicants request that the rejection be withdrawn and that claims 31 – 32 be allowed.

Regarding claims 36 – 38, as argued above, Iverson does not disclose or suggest using motion information to determine whether to predictively encode the current macroblock upon determining based on texture information of the current macroblock not to nonpredictively encode the current macroblock, as in claim 23. Claims 36 – 38 incorporate all the subject matter of claim 23 and add additional subject matter, making them patentable as well over Iverson. The addition of any alleged disclosure in Kim does nothing to remedy the deficiencies of Iverson.

Furthermore, there is no teaching in either Iverson or Kim that would suggest that it would be advantageous or desirable to modify the Iverson reference. As such claims 36 – 38 are non-obvious over the purported Iverson-Kim combination. Applicants request that the rejection be withdrawn and that claims 36 – 38 be allowed.

Regarding claims 39 – 41, as argued above, Iverson does not disclose or suggest an apparatus comprising a complexity control element configured to receive a configuration signal and to configure at least one variable within a complexity control algorithm in accordance with the configuration signal “wherein the complexity control algorithm categorizes portions of a predictive video frame as nonpredictive portions when texture information of the portions indicates there is less than or equal to a predetermined amount of spatial information, [and] uses motion information to determine whether to categorize the portions as predictive portions if the texture information of the portions indicates there is not less than or equal to the predetermined amount of spatial information,” as in claim 24. Claims 39 – 41 incorporate all the subject matter of claim 24 and add additional subject matter, making them patentable as well over Iverson. The addition of any alleged disclosures in Kim does nothing to remedy the deficiencies of Iverson.

Furthermore, there is no teaching in either Iverson or Kim that would have suggested that it would be advantageous or desirable to modify the Iverson reference to incorporate the limitations of the claims. As such claims 39 – 41 are non-obvious over the purported Iverson-Kim combination. Applicants request that the rejection be withdrawn and that claims 39 – 41 be allowed.

Regarding claims 44 – 45, Iverson does not disclose an apparatus that performs a motion estimation search and uses motion information determined during the motion estimation search to determine whether the portion comprises at least a predetermined amount of predictive information upon determining texture information indicated that the portion does not comprise at most a predetermined amount of spatial information., as in claim 25, for at least the reasons

presented above with respect to the method of claim 6. Claims 44 – 45 incorporate all the subject matter of claim 25 and add additional subject matter, making them patentable as well over Iverson. The addition of any alleged disclosure in Kim does nothing to remedy the deficiencies of Iverson.

Furthermore, there is no teaching in either Iverson or Kim that would have suggested that it would be advantageous or desirable to modify the Iverson reference to incorporate the limitations of the claims. As such claims 44 – 45 are non-obvious over the purported Iverson-Kim combination. Applicants request that the rejection be withdrawn and that claims 44 – 45 be allowed.

Regarding claims 51 – 52, Iverson does not disclose an apparatus that performs a motion estimation search upon determining that texture information indicated that the portion does not comprise at most a predetermined amount of spatial information, as in claim 49, for at least the reasons presented above with respect to the method of claim 6. Claims 51 – 52 incorporate all the subject matter of claim 49 and add additional subject matter, making them patentable as well over Iverson. The addition of any alleged disclosure in Kim does nothing to remedy the deficiencies of Iverson.

Furthermore, there is no teaching in either Iverson or Kim that would have suggested that it would be advantageous or desirable to modify the Iverson reference to incorporate the limitations of the claims. As such claims 51 – 52 are non-obvious over the purported Iverson-Kim combination. Applicants request that the rejection be withdrawn and that claims 51 – 52 be allowed.

Regarding claims 63 – 65, Iverson fails to teach or suggest a processor-readable storage medium comprising instructions that when executed by a processor cause the processor to configure at least one variable within a complexity control algorithm in accordance with the configuration signal, “wherein the complexity control algorithm categorizes portions of a predictive video frame as nonpredictive portions when texture information of the portions indicates there is less than or equal to a predetermined amount of spatial information, [and] uses motion information to determine whether to categorize the portions as predictive portions if the texture information of the portions indicates there is not less than or equal to the predetermined amount of spatial information,” as recited in claim 62, for at least the reasons presented above with respect to the apparatus of claim 24. Claims 63 – 65 incorporate all the subject matter of

claim 62 and add additional subject matter, making them patentable as well over Iverson. The addition of any alleged disclosure in Kim does nothing to remedy the deficiencies of Iverson.

Furthermore, there is no teaching in either Iverson or Kim that would suggest that it would be advantageous or desirable to modify the Iverson reference. As such claims 63 – 65 are non-obvious over the purported Iverson-Kim combination. Applicants request that the rejection be withdrawn and that claims 63 – 65 be allowed.

Regarding claims 67 – 68, Iverson fails to teach or suggest using motion information of a current macroblock to determine whether to predictively encode the current macroblock upon determining not to nonpredictively encode the current macroblock based on texture information of the current macroblock, as in claim 26, for at least the reasons presented above with respect to the method of claim 12. Claims 67 – 68 incorporate all the subject matter of claim 26 and add additional subject matter, making them patentable as well over Iverson. The addition of any alleged disclosure in Kim does nothing to remedy the deficiencies of Iverson.

Furthermore, there is no teaching in either Iverson or Kim that would suggest that it would be advantageous or desirable to modify the Iverson reference. As such claims 67 – 68 are non-obvious over the purported Iverson-Kim combination. Applicants request that the rejection be withdrawn and that claims 67 – 68 be allowed.

10. The Office rejected claims 13–14, 29–30, 35, 42, 47–48, 54–55 and 66 under 35 U.S.C. § 103, alleging the same to unpatentable over Yasunari in view of U.S. Patent No. 6,415,055 to Kato (hereafter “Kato”).

As argued above, Yasunari fails to teach or suggest all the elements of independent claims 12, 23, 26, 28, 46, 53, and 65. Claims 13 – 14, 29 – 30, 35, 47 – 48, 54 – 55, and 66 depend from claims 12, 23, 26, 28, 46, 53, and 65. The addition of any alleged disclosure in Kato does nothing to remedy the deficiencies of Yasunari.

Furthermore, there is no teaching in either Yasunari or Kato that would suggest that it would be advantageous or desirable to modify the Yasunari reference. As such claims 13 – 14, 29 – 30, 35, 47 – 48, 54 – 55, and 66 are non-obvious over the purported Yasunari-Kato combination. Applicants request that the rejection be withdrawn and that claims 13 – 14, 29 – 30, 35, 47 – 48, 54 – 55, and 66 be allowed.

Regarding claim 42, Yasunari does not disclose or suggest all the elements of claim 25, from which claim 42 depends. Claims 25 recites

if the texture information indicates that the portion does not
comprise at most a predetermined amount of spatial information,
then:
 performing a motion estimation search;
 using motion information determined during the motion
estimation search to determine whether the portion comprises at
least a predetermined amount of predictive information

Claim 25 is directed to an apparatus that performs a motion estimation search and uses motion information determined during the search to determine whether the portion comprises at least a predetermined amount of predictive information upon determining that the texture information indicates that the portion does not comprise at most a predetermined amount of spatial information.

In Yasunari, blocks 103-107 produce candidate blocks that are used by coding distortion estimator 108 and coding mode determiner 109 to select a coding mode. Block 102 is simply a demultiplexer. None of blocks 102 and 108-110 perform a motion estimation search conditioned on a prior determination that texture information indicates that the portion does not comprise at most a predetermined amount of spatial information. Rather, blocks 108, 109 analyze candidate blocks that have already been encoded to select a coding mode. As such, Yasunari does not teach or suggest all the elements of claim 25. Claim 42 incorporates all the subject matter of claim 25 and adds additional subject matter, making it patentable as well over Yasunari. The addition of any alleged disclosure in Kato does nothing to remedy the deficiencies of Yasunari.

Furthermore, there is no teaching in either Yasunari or Kato that would suggest that it would be advantageous or desirable to modify the Yasunari reference. As such claim 42 is non-obvious over the purported Yasunari -Kato combination. Applicants request that the rejection be withdrawn and that claim 42 be allowed.

11. The Office rejected claims 15-17, 36, 43, 56-58 and 68 under 35 U.S.C. § 103, alleging the same to be unpatentable over Yasunari in view of U.S. Patent No. 6,014,181 to Sun (hereafter "Sun").

As argued above, Yasunari fails to teach or suggest all the elements of independent claim 12. Claims 15 - 17 depend from claim 12. The addition of any alleged disclosure in Sun does nothing to remedy the deficiencies of Yasunari.

Furthermore, there is no teaching in either Yasunari or Sun that would have suggested that it would be advantageous or desirable to modify the Yasunari reference to incorporate the limitations of the claims. As such claims 15 – 17 are non-obvious over the purported Yasunari-Sun combination. Applicants request that the rejection be withdrawn and that claims 15 – 17 be allowed.

As argued above, Yasunari fails to teach or suggest all the elements of independent claim 23. Claim 36 depends from claim 23. The addition of any alleged disclosure in Sun does nothing to remedy the deficiencies of Yasunari.

Furthermore, there is no teaching in either Yasunari or Sun that would have suggested that it would be advantageous or desirable to modify the Yasunari reference to incorporate the limitations of the claims. As such claim 36 is non-obvious over the purported Yasunari-Sun combination. Applicants request that the rejection be withdrawn and that claim 36 be allowed.

Regarding claim 43, as argued above, Yasunari does not disclose all the elements of independent claim 25. Claim 43 incorporates all the subject matter of claim 25 and adds additional subject matter, making it patentable as well over Yasunari. The addition of any alleged disclosure in Sun does nothing to remedy the deficiencies of Yasunari.

Furthermore, there is no teaching in either Yasunari or Sun that would suggest that it would be advantageous or desirable to modify the Yasunari reference. As such claim 43 is non-obvious over the purported Yasunari-Sun combination. Applicants request that the rejection be withdrawn and that claim 43 be allowed.

Regarding claims 56 – 58, as argued above, Yasunari fails to teach or suggest all the elements of independent claim 53. Claims 56 – 58 depend from claim 53 either directly or indirectly. The addition of any alleged disclosure in Sun does nothing to remedy the deficiencies of Yasunari.

Furthermore, there is no teaching in either Yasunari or Sun that would have suggested that it would be advantageous or desirable to modify the Yasunari reference to incorporate the limitations of the claims. As such claims 56– 58 are non-obvious over the purported Yasunari-Sun combination. Applicants request that the rejection be withdrawn and that claims 56 – 58 be allowed.

Regarding claim 68, as argued above, Yasunari fails to teach or suggest all the elements of independent claim 26. Claim 68 incorporates all the subject matter of claim 26 and adds

additional subject matter, making it patentable as well over Yasunari. The addition of any alleged disclosure in Sun does nothing to remedy the deficiencies of Yasunari.

Furthermore, there is no teaching in either Yasunari or Sun that would have suggested that it would be advantageous or desirable to modify the Yasunari reference to incorporate the limitations of the claims. As such claim 68 is non-obvious over the purported Yasunari-Sun combination. Applicants request that the rejection be withdrawn and that claim 68 be allowed.

12. The Office rejected claims 37–38, 44–45 and 67 under 35 U.S.C. § 103, alleging the same to be unpatentable over Yasunari in view of Kim.

Regarding claims 37 – 38, as argued above, Yasunari fails to teach or suggest all the elements of independent claim 23. Claims 37 – 38 depend from claim 23 either directly or indirectly. The addition of any alleged disclosure in Kim does nothing to remedy the deficiencies of Yasunari.

Furthermore, there is no teaching in either Yasunari or Kim that would suggest that it would be advantageous or desirable to modify the Yasunari reference. As such claims 37 – 38 are non-obvious over the purported Yasunari-Kim combination. Applicants request that the rejection be withdrawn and that claims 37 – 38 be allowed.

Regarding claims 44 – 45, as argued above, Yasunari fails to teach or suggest all the elements of independent claim 25. Claims 44 – 45 depend from claim 25 either directly or indirectly. The addition of any alleged disclosure in Kim does nothing to remedy the deficiencies of Yasunari.

Furthermore, there is no teaching in either Yasunari or Kim that would have suggested that it would be advantageous or desirable to modify the Yasunari reference to incorporate the limitations of the claims. As such claims 44 – 45 are non-obvious over the purported Yasunari-Kim combination. Applicants request that the rejection be withdrawn and that claims 44 – 45 be allowed.

Regarding claims 67, as argued above, Yasunari fails to teach or suggest all the elements of independent claim 26. Claim 67 depends directly from claim 26. The addition of any alleged disclosure in Kim does nothing to remedy the deficiencies of Yasunari.

Furthermore, there is no teaching in either Yasunari or Kim that would have suggested that it would be advantageous or desirable to modify the Yasunari reference to incorporate the

limitations of the claims. As such claim 67 is non-obvious over the purported Yasunari-Kim combination. Applicants request that the rejection be withdrawn and that claim 67 be allowed.

13. The Office rejected claim 1-2, 6-7, 11, 25 and 43-44 under 35 U.S.C. § 103, alleging the same to be unpatentable over U.S. Patent No. 6,108,449 to Sekiguchi et al. (hereafter "Sekiguchi") as set forth in the previous Office Action dated 4/14/2008.

Regarding Claim 1 and Those Claims Depending Therefrom

Sekiguchi fails to teach or suggest all the elements of claim 1. Claim 1 is directed to a method that uses motion information to determine whether a portion of a video frame comprises at least a predetermined amount of predictive information if it is first determined that texture information indicates that the portion does not comprise at most a predetermined amount of spatial information. As such, per the method of claim 1, use of motion information to determine whether the portion comprises at least a predetermined amount of predictive information is conditioned on the prior determination that the texture information indicates that the portion does not comprise at least a predetermined amount of spatial information.

This is in contrast to the teachings of Sekiguchi. The Sekiguchi specification states

As a consequence of the frame-based and field-based predictions, the frame-based prediction data for texture 13 and the field-based prediction data for texture 17 are generated. When the texture encoding unit 18 receives the frame-based and field-based prediction data for texture 13 and 17 and the texture data 9 of a macroblock to be encoded, it determines whether it selects either the frame-based prediction or the field-based prediction, and further determines whether it selects either intra or intra-coding mode or inter or inter-coding mode, which is the frame-based prediction mode or the field-based prediction mode which has been selected. Finally, the texture encoding unit 18 selects the one mode that offers the highest degree of encoding efficiency. (Column 16, line 63 – column 17, line 9.) (Emphasis added)

In other words, texture encoding unit 18 decides whether to encode using inter or intra coding only *after* motion detection is performed via frame-based motion detection unit 10 and field-based motion detection unit 14. In contrast to claim 1, there is no previous determination of the amount of spatial information based on texture information before proceeding to motion estimation, as in claim 1.

Furthermore, regardless of whether or not texture encoding occurs before or after motion estimation, texture encoding is not "using texture information in the portion to determine whether the portion comprises at most a predetermined amount of spatial information," as in claim 1. As such, Sekiguchi fails to teach or suggest "if the texture information indicates that the portion does not comprise at most a predetermined amount of spatial information, then us[e] motion information of the current macroblock to determine whether to predictively encode the current macroblock," particularly in combination with the other recited elements of Applicants' claim 1.

Furthermore, there is no teaching in Sekiguchi that would suggest that it would be advantageous or desirable to make the modifications necessary to produce the embodiments recited in claim 1. As such claim 1 is non-obvious over the Sekiguchi reference.

Claim 2 incorporates all the subject matter of claim 1, and adds additional subject matter, making it patentable as well over Sekiguchi. Applicants request withdrawal of the rejection and that claims 1 – 2 be allowed.

Regarding Claim 6 and Those Claims Depending Therefrom

Sekiguchi fails to teach or suggest all the elements of claim 6. Claim 6 is directed to a method that performs a motion estimation search and uses motion information determined during the motion estimation search to determine whether the portion comprises at least a predetermined amount of predictive information upon determining texture information indicated that the portion does not comprise at most a predetermined amount of spatial information. Thus, the determination of whether to perform a motion estimation search is conditioned on a prior determination that the texture information indicates that the portion does not comprise at most a predetermined amount of spatial information. This is in contrast to Sekiguchi, for at least the reasons presented above with respect to claim 1.

Furthermore, there is no teaching in Sekiguchi that would have suggested that it would be advantageous or desirable to make the modifications necessary to produce the embodiments recited in claim 6. As such claim 6 is non-obvious over the Sekiguchi reference.

Claims 7 and 11 incorporate all the subject matter of claim 6, and add additional subject matter, making them patentable as well over Sekiguchi. Applicants request withdrawal of the rejection and that claims 6 – 7 and 11 be allowed.

Regarding Claim 25 and Those Claims Depending Therefrom

Sekiguchi fails to teach or suggest all the elements of claim 25. Claim 25 is directed to an apparatus that performs a motion estimation search and uses motion information determined during the motion estimation search to determine whether the portion comprises at least a predetermined amount of predictive information if the texture information indicates that the portion does not comprise at most a predetermined amount of spatial information. This is in contrast to Sekiguchi, for at least the reasons presented above with respect to claim 1. As such, Sekiguchi fails to teach or suggest all the elements of claim 25.

Furthermore, there is no teaching in Sekiguchi that would suggest that it would be advantageous or desirable to make the modifications necessary to produce the embodiment recited in claim 25. As such claim 25 is non-obvious over the Sekiguchi reference.

Claims 43 – 44 incorporate all the subject matter of claim 25, and add additional subject matter, making them patentable as well over Sekiguchi. Applicants request withdrawal of the rejection and that claims 25 and 43 – 44 be allowed.

14. The Office rejected claims 3–5, 8–10 and 42 under 35 U.S.C. § 103, alleging the same to be unpatentable over Sekiguchi in view of Kato.

Regarding Claims 3 – 5

As argued above, Sekiguchi fails to teach or suggest all the elements of claim 1. Claims 3 – 5 incorporate all the subject matter of claim 1 and add additional subject matter, making them patentable as well over Sekiguchi. The addition of any alleged disclosure in Kato does nothing to remedy the deficiencies of Sekiguchi.

Furthermore, there is no teaching in either Sekiguchi or Kato that would suggest that it would be advantageous or desirable to modify the Sekiguchi reference. As such claims 3 – 5 are non-obvious over the purported Sekiguchi-Kato combination. Applicants request that the rejection be withdrawn and that claims 3 – 5 be allowed.

Regarding Claims 8 – 10

As argued above, Sekiguchi fails to teach or suggest all the elements of claim 6. Claims 8 – 10 incorporate all the subject matter of claim 6 and add additional subject matter, making them patentable as well over Sekiguchi. The addition of any alleged disclosure in Kato does nothing to remedy the deficiencies of Sekiguchi.

Furthermore, there is no teaching in either Sekiguchi or Kato that would suggest that it would be advantageous or desirable to modify the Sekiguchi reference. As such claims 8 – 10 are non-obvious over the purported Sekiguchi-Kato combination. Applicants request that the rejection be withdrawn and that claims 8 – 10 be allowed.

Regarding Claim 42

As argued above, Sekiguchi fails to teach or suggest all the elements of claim 25. Claim 42 incorporates all the subject matter of claim 25 and adds additional subject matter, making it patentable as well over Sekiguchi. The addition of any alleged disclosure in Kato does nothing to remedy the deficiencies of Sekiguchi.

Furthermore, there is no teaching in either Sekiguchi or Kato that would suggest that it would be advantageous or desirable to modify the Sekiguchi reference. As such claim 42 is non-obvious over the purported Sekiguchi-Kato combination. Applicants request that the rejection be withdrawn and that claim 42 be allowed.

15. The Office rejected claims 31–32 under 35 U.S.C. § 103, alleging the same to be unpatentable over Sekiguchi in view of Kim.

As argued above, Sekiguchi fails to teach or suggest all the elements of claim 6. Claims 31 – 32 incorporate all the subject matter of claim 6 and add additional subject matter, making them patentable as well over Sekiguchi. The addition of any alleged disclosure in Kim does nothing to remedy the deficiencies of Sekiguchi.

Furthermore, there is no teaching in either Sekiguchi or Kim that would suggest that it would be advantageous or desirable to modify the Sekiguchi reference. As such claims 31 – 32 are non-obvious over the purported Sekiguchi-Kim combination. Applicants request that the rejection be withdrawn and that claims 31 – 32 be allowed.

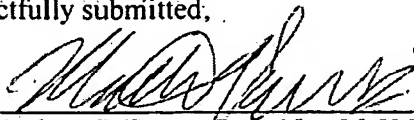
CONCLUSION

In light of the amendments contained herein, Applicants submit that the application is in condition for allowance, for which early action is requested.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

Dated: 1/15/09

By: 
Matthew J. Evans, Reg. No. 56,530
858.651.7571

QUALCOMM Incorporated
Attn: Patent Department
5775 Morehouse Drive
San Diego, California 92121-1714
Telephone: (858) 651-7571
Facsimile: (858) 658-2502